UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,511	10/15/2003	Takeshi Nomura	396.43174X00	6734

20457 7590 02/21/2007
ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

EXAMINER	
PATTERSON, MARC A	
ART UNIT	**PAPER NUMBER**
1772	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

✓

Office Action Summary	Application No.	Applicant(s)	
	10/684,511	NOMURA ET AL.	
	Examiner	Art Unit	
	Marc A. Patterson	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *10/3/06*.
2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14 and 16-22* is/are pending in the application.
  4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-14 and 16-22* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☐ All b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
  Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

NEW REJECTIONS

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1 – 4, 7 and 16 – 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hata et al (U.S. Patent No. 6,033,749) in view of Strassel (U.S. Patent No. 3,475,266).

With regard to Claims 1 – 2, 7, 19 and 22, Hata et al discloses a fuel system comprising a fuel vessel (fuel tank (column 4, line 16), therefore a fuel vessel, comprising having a body comprising a thermoplastic resin (column 2, line 35 – 40); a layer of any resin is formed on the surface of the inside (column 5, line 14 – 18). Hata et al fail to disclose a resin which is a coating layer formed by curing a urethane resin composition comprising an active hydrogen containing compound and an organic polyisocyanate compound and having a gasoline permeability coefficient of 2 g • mm/m^2 • day or less at 23 degrees Celsius and a relative humidity of 60% RH and having the claimed structure in the amount of 20% by weight or more.

Strassel teaches a polyurethane coating (column 1, lines 47 – 55) formed by curing a composition (column 3, lines 2 – 4) comprising an active hydrogen containing compound (polyol, therefore having at least three active hydrogen atoms; column 2, line 22) and an organic polyisocyanate compound (column 2, line 23) and having a gasoline permeability coefficient of 0.2 g • mm/m^2 • day or less at 23 degrees Celsius and a relative humidity of 60% RH (impermeable to fluid, therefore to gasoline; Abstract) and the claimed structure in the amount of 20% by weight or more (NH_2/OH ratio of greater than 0.5; column 3, line 22) for the purpose of making an article comprising the coating which is fluid – tight (column 1, line 43). One of ordinary skill in the art would therefore have recognized the advantage of providing for the composition of Strassel in Hata et al, which is comprises an article, depending on the desired fluid – tightness of the end product.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for a urethane resin composition comprising an active hydrogen containing compound and an organic polyisocyanate compound and having a gasoline permeability coefficient of 2 g • mm/m^2 • day or less at 23 degrees Celsius and a relative humidity of 60% RH in Hata et al in order to obtain an article which is fluid – tight as taught by Strassel.

With regard to Claims 3 – 4, the thermoplastic resin disclosed by Hata comprises polyolefin base resin (high density polyethylene; column 2, lines 35 – 40).

With regard to Claim 16, the coating disclosed by Hata et al is formed on the surface of the inside, as stated above, and is therefore formed at an area rate of 100%.

With regard to Claims 17 – 18, the fuel tank disclosed by Hata et al is molded (column 6, line 11), and is therefore equipped with molded parts for a fuel.

With regard to Claim 20, the ratio of isocyanate groups to OH groups taught by Strassel falls in a range between 0.8 and 2.0 (column 2, line 23).

With regard to Claim 21, the thickness of the coating taught by Strassel is 200 □m (column 1, lines 35 – 38).

3. Claims 5 – 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hata et al (U.S. Patent No. 6,033,749) in view of Strassel (U.S. Patent No. 3,475,266) and further in view of Ramanathan et al (U.S. Patent Publication No. 2003/0044553 A1).

Hata et al and Strassel disclose a fuel vessel comprising a urethane coating as discussed above and comprising a polyurethane as discussed above. The vessel comprises a vinyl resin (column 3, line 26). With regard to Claims 5 – 6, Hata et al and Strassel fail to disclose a tube.

Ramanathan et al teach a fuel vessel having that is a tube (having a cylindrical opening, therefore tubular, through the wall; paragraph 0073) for the purpose of obtaining a fuel vessel having barrier properties (paragraph 0023). One of ordinary skill in the art would therefore have recognized the advantage of providing for the tube of Ramanathan et al in Hata et al and Strassel, which is comprises a fuel vessel, depending on the desired barrier properties of the end product.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for a tube in Hata et al and Strassel in order to obtain a vessel having barrier properties as taught by Ramanathan et al.

4. Claims 9 – 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hata et al (U.S. Patent No. 6,033,749) in view of Strassel (U.S. Patent No. 3,475,266) and further in view of Toyota et al (U.S. Patent No. 6,815,467).

Hata et al and Strassel disclose a fuel vessel comprising a urethane comprising an active hydrogen containing compound and an organic polyisocyanate compound. With regard to

Claims 9 – 14, Hata et al and Strassel fail to disclose an active hydrogen – containing compound comprising an alkyleneoxide adduct of xylylenediamine in which the alkyleneoxide has 2 to 4 carbon atoms and a polyisocyanate compound comprising a reaction product of a polyfunctional isocyanate compound and a polyfunctional alcohol comprising $C_2$to C_{10} polyfunctional alcohols and a polyfunctional isocyanate comprising xylylenediisocyanate.

Toyota et al teach a urethane (column 14, lines 60 – 65) comprising an active hydrogen – containing compound comprising an alkyleneoxide adduct of xylylenediamine in which the alkyleneoxide has 2 to 4 carbon atoms (column 8, lines 66 – 67; column 9, lines 12 – 14) and a polyisocyanate compound comprising a reaction product of a polyfunctional isocyanate compound and a polyfunctional alcohol comprising $C_2$to C_{10} polyfunctional alcohols (modified polyisocyanate, therefore including polyisocyanates reacted with alcohols; column 8, line 16) and a polyfunctional isocyanate comprising xylylenediisocyanate (column 8, line 21) for the purpose of obtaining a urethane that is flexible (column 9, lines 39 – 41). One of ordinary skill in the art would therefore have recognized the advantage of providing for an active hydrogen – containing compound comprising an alkyleneoxide adduct of xylylenediamine in which the alkyleneoxide has 2 to 4 carbon atoms and a polyisocyanate compound comprising a reaction product of a polyfunctional isocyanate compound and a polyfunctional alcohol comprising C_2 to C_{10} polyfunctional alcohols and a polyfunctional isocyanate comprising xylylenediisocyanate in Hata et al and Strassel, which comprises a coating, depending on the desired flexibility of the end product.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for an active hydrogen – containing compound comprising an alkyleneoxide adduct of xylylenediamine in which the alkyleneoxide has 2 to 4 carbon atoms and a polyisocyanate compound comprising a reaction product of a polyfunctional isocyanate compound and a polyfunctional alcohol comprising C_2 to C_{10} polyfunctional alcohols and a polyfunctional isocyanate comprising xylylenediisocyanate in Hata et al and Strassel in order to obtain a urethane that is flexible as taught by Toyota et al. Hata et al and Strassel would therefore comprise a coating therefore comprising the claimed structure in the amount of 20% by weight or more.

ANSWERS TO APPLICANT'S ARGUMENTS

5. Applicant's arguments regarding the 35 U.S.C. 103(a) rejection of Claims 1 – 4, 7 and 16 – 18 as being unpatentable over Hata et al (U.S. Patent No. 6,033,749) in view of Strassel (U.S. Patent No. 3,475,266) and 35 U.S.C. 103(a) rejection of Claims 9 – 14 as being unpatentable over Hata et al (U.S. Patent No. 6,033,749) in view of Strassel (U.S. Patent No. 3,475,266) and further in view of Toyota et al (U.S. Patent No. 6,815,467), of record in the previous Action, have been carefully considered but have not been found to be persuasive for the reasons set forth below.

Applicant argues, on page 12 of the remarks dated October 3, 2006, that Strassel does not teach a fuel barrier; Strassel, Applicant argues, teaches a protective coating.

However, as stated above, the protective coating taught by Strassel is fluid tight, and is therefore a fuel barrier.

Applicant also argues, on page 13, that one skilled in the art would not have looked to Strassel in connection with the fuel tank of Hata et al.

However, as stated above, Hata et al disclose the use of a layer of any resin; furthermore, a resin taught by Strassel provides fluid – tightness; therefore it would have been obvious for one of ordinary skill in the art to have provided for the resin of Strassel in Hata et al.

Applicant also argues, on page 13, that the resin of Toyota et al is used only for seats, cushions and mattresses.

However, Toyota et al is not limited to seats, cushions and mattresses.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc A Patterson whose telephone number is 571-272-1497. The examiner can normally be reached on Mon - Fri 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marc Patterson 12/11/06
Marc A. Patterson, PhD.
Primary Examiner
Art Unit 1772